Photo by SSgt. Gaddis

Hydraulic Hell

By Lt. Shane Marchesi

My first night-combat mission began with reveille and ended with a NATOPS wake-up call. The brief was pointed. We discussed the administrative transit to and from Kandahar, as well as the tactical considerations of working in a killbox in southern Afghanistan.

Next, we packed for the upcoming battle: holster, gun, ammunition, evasion chart, night-vision goggles, camel back, memory unit, power bars, and kneeboard pack. After spending three years carrying only an approach plate and kneeboard, the amount of gear required definitely changed our perspective on the upcoming evolution. By the time I arrived at the jet, I was ready to call it a night.

The initial portion of the mission went as briefed. I found my lead during the transit, and we went to our first tanker. From a distance, my goggles broke out several point sources of light, which I correlated to my tanker's position lights. The correlation proved incorrect. I couldn't understand how the tanker was transparent in places. I saw why when I got a little closer. There were two Hornets on each wing and a Prowler in the basket.

Besides confusion about the tanker itself, I had spurious flight-control-system (FCS) cautions, with no Xs during the join. My bucket was full flying wing, so I didn't troubleshoot further. I accepted the cautions as an anomaly and continued our mission, working with an AC-130 pounding Taliban SUVs.

The FCS caution returned 20 minutes after our first tanking evolution. I checked the FCS page and saw my left leading-edge flap was X'd out. The next step was to break out the pocket checklist. My hydraulic gauge read normal, and I reset the flight controls. They reset properly, so I continued to monitor the hydraulic 1 and 2 gauges.

Within seconds, my hyd 1 needle dropped to 2,800 psi—close to within limits—and I knew something was wrong. I told my lead, and we headed southeast. Thirty seconds later, my hyd 1 gauge read 2,500 psi, and, 30 seconds later, it dropped to 2,000 psi. We knew there was a hydraulic problem. Finally, the hyd 1 pressure dropped completely.

After a moment of confusion in my cockpit, lead and I began to troubleshoot the hydraulic problems. Our main concern was an APU ACCUM caution light that came on during the hyd 1 failure. The caution indicated a potential leak in the remaining good hydraulic system. Leaks in both systems could result in out-of-control flight. Of note, the aircraft-discrepancy book contained a previous gripe for the APU ACCUM caution. While we were troubleshooting, we did not discuss the gripe information.

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As the flight progressed, other issues had to be addressed. My aircraft was configured with two GBU16s and three external fuel tanks. As I decelerated through 200 knots, I tried to maintain altitude with the right throttle at military power and the left throttle at idle, and later off. Consequently, I decided to jettison the two GBUs. After jettison, I maintained 20,000 feet and 220 knots.

When this incident occurred, our flight was 50 miles north of Kandahar, in the heart of southern Afghanistan. There were two options: Return to the ship, which was 600 miles away, or divert into Jacobabad, Pakistan. Both options had drawbacks. We were below single-engine bingo for the ship. Although the aircraft was capable of tanking, getting a heavy tanker down to 15,000 feet and slowing to 220 knots over Afghanistan was not a possibility. Also, we were unsure of hyd 2's status, specifically hyd 2B. The APU ACCUM caution, while a repeat gripe, caused us to doubt the reliability of hyd 2B.

Landing in Jacobabad, Pakistan brought other considerations. At the time of the incident, we considered the area around the airfield a hostile environment. Reports of daily surface-to-air fire came from near the field. Eventually, because of the nature of the emergency, we decided a trip to Jacobabad was in order even though it was 400 miles away.

The transit took over an hour, with all cautions remaining, flight controls X'd out, and a shaky hyd 2 needle. My lead accompanied me until he was instructed to return to mother. I had little trouble finding the field. Special Forces on station controlled the field and awaited my arrival.

I restarted the left engine for landing and flew a seven-degree AOA approach, flaring because of LEF position. Also, the right rudder was X'd out, fared out 47 degrees, and the right motor was above 85 percent. The anti-skid worked as advertised, despite a lack of use the previous month. I taxied off the runway, shut down, and remained in Jacobabad for the three days.

We learned several lessons from my experience over Afghanistan:

✈ Weekly NATOPS exams keep each pilot sharp, but periodic review of all procedures also is helpful.

✈ Upon entry into Jacobabad's airspace, I initially couldn't contact the tower because the frequency was incorrect on our card. An airwing E-2 relayed the right frequency to us so I could contact the tower before landing. All the other information was correct, making it easy to find the field. Always make sure your divert information is accurate.

✈ Jettison bombs, tanks, or do whatever is necessary to stay airborne. I feared an out-of-control-flight situation because of degraded flight controls and limited airspeed more than I feared landing in Jacobabad.

✈ The lower altitudes put my aircraft in the envelope of surface-to-air missiles. Altitude and airspeed are life, especially in a hostile environment.

The implications for serious aircraft failures in a hostile environment can't be ignored for squadrons forward-deployed and flying in harm's way. Know the divert information, fly the aircraft first, and trust NATOPS for troubleshooting.

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